

ORGANIC PEST MANAGEMENT

A healthy farm ecosystem consists of many different types of lifeforms. Many insects, fungi and bacteria are called beneficial organisms because they help crops by pollinating plants, providing nutrients or attacking harmful insects. Plants that compete with crops are considered weeds. Some insects and diseases are considered pests because they can harm crops. The key to managing pests and weeds on organic farms is to reduce their impact.

Organic farmers identify the conditions that allow weeds and pests to thrive and try to create more favourable conditions. Other farmers may use some of the following practices, but organic farmers rely on these practices more than pesticides.



Japanese beetle eating grape leaves

ORGANIC PRACTICES



Rotating crops

disrupts the life cycles of pests. Pests and weeds thrive when the same crop is planted year after year. Crop rotation changes that. For example, potato beetles suffer when they emerge from winter hibernation and find themselves in a wheat field.



Maintaining high levels of biodiversity

creates habitat for birds and invertebrates that attack pests.^{1,2} Biodiversity (variety of lifeforms) can be enhanced by (i) growing many types of crops on a farm or even within a field, (ii) leaving wild hedgerows or meadows on the farm, and (iii) not spraying pesticides.



Intercropping,

the planting of two or more crops together, makes it difficult for harmful insects to find plants. For example, alternating rows of onions and carrots reduces damage by carrot rust flies, which find carrots by their smell.³



Strategic planting

considers pest life cycles when deciding when to plant and harvest.⁴ Often organic farmers plant late to avoid the first flush of weeds and first generation of pests. They use high seeding rates because dense plantings leave less room for weeds to grow.



Planting cover crops,

unharvested crops grown solely for their benefit to the farm. They compete with weeds and provide habitat for beneficial organisms that attack pests.



Choosing varieties

bred or proven to perform well under organic conditions; these may be more resistant to pests and better able to compete with weeds.



Pepper seedlings being transplanted into black plastic mulch by hand

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When prevention isn't enough...

CONTROLLING WEEDS

- **Tillage** (working the soil) uproots weeds; organic farmers use tillage when necessary but focus on preventing weed problems.
- **Flame weeding** uses a flame from a propane torch (tractor-mounted or backpack) to kill small weeds.⁵
- **Handweeding** and **hoeing** are used on many market gardens.
- **Mulching** covers bare soil (e.g., with straw or a cover crop).

CONTROLLING HARMFUL INSECTS

Organic farmers must develop a plan to prevent pests. If a pest problem arises despite preventative measures, farmers can use substances that have passed stringent reviews of the social and ecological impact of the production and application of the substance.⁶

Examples of allowable products:

- ***Bacillus thuringiensis* (BT)** – soil bacteria that kills certain soft-bodied pests
- **Bentonite, kaolin** – clay applied to leaves to discourage insect pests
- **Diatomaceous earth (DE)** – fossilized diatoms (hard-shelled algae), which scrape the bodies of certain insects causing dehydration
- **Dormant oils** – work by covering up the breathing tubes or damaging cell walls of certain insects
- **Floating row covers** (lightweight fabric) – inhibit pests from landing on plants
- **Pheromone traps** - attract and trap pests or prevent mating by using pheromones (chemicals released by insects)
- **Pyrethrum** – botanical pesticide derived from chrysanthemums
- **Soap** – damages cell walls or suffocates certain pests
- **Spinosad** – an extract from soil bacteria that kills certain pests



A box of Aphid Eliminator, a beneficial parasitic insect that can kill up to 65 aphids per day.

NATURAL ALLIES

Plants, insects and other organisms help organic farmers control pests. For example, a cover crop of ryegrass can smother weeds and tachinid flies can parasitize cabbageworms. Beneficial organisms are creatures that perform a beneficial role in pollinating plants or attacking harmful insects. To recruit the support of beneficial organisms, farmers can provide suitable habitat by sowing plants preferred by beneficial organisms, welcoming wildflowers, or increasing biodiversity in general.



Apple tree with a red sticky ball insect trap



Ladybug on an apple flower